

University of Mumbai			
CLASS: F.E (All Branches of Engineering)		Semester - II	
SUBJECT: Computer Programming - II			
Periods per week 01 Period of 60 min	Lecture	4 hours	
	Practical	2 hours	
	Tutorial	-	
		Hours	Marks
Evaluation System	Theory Examination	3	100
	Practical & Oral Examination	03	25
	Oral Examination	--	--
		Term Work	25
		Total	150

Details of the Syllabus:-

Detailed Syllabus: CP-II (Object Oriented Programming in (JAVA))		Hrs
01	<p>Module 1 Introduction to Java:</p> <ul style="list-style-type: none"> • Characterizing Java as a enabler of contemporary software engineering paradigms- as a platform, Simple Programming Environment, Object-Oriented, Platform Independent, Safe, High performance, Java is Multi-Threaded, Dynamically linked, Java is Garbage collected. • Saving files on windows, Compiling and Running • Increment and decrement operators • Print statements, Variables and Data Types, Comments • Command line arguments • Objects, static fields, Methods • Passing Arguments to Methods, Returning values from methods 	5hours
02	<p>Module 2 Primitive Data Types in Java</p> <ul style="list-style-type: none"> • Java Operators, Literals, Identifiers, key words in Java • Addition of Integers in Java, Multiplication and division in Java • The Remainder on Modulus Operator in Java • Operator Precedence in Java, Mixing Data Types • Converting Strings to Numbers, The char data type in Java • The if, else, else-if statement in Java • The while loop, the for loop, The do while loop in Java • Booleans, Relational Operators, Relational operator Precedence. 	15

	<ul style="list-style-type: none"> • Break, Continue, The switch statement in Java • The operator in Java, Logical Operators in Java <p>Object Oriented Programming</p> <ul style="list-style-type: none"> • Constructing objects with new, Methods, Invoking Methods • Implied this, Member Variables vs. Local Variables • Passing Arguments to Methods, Returning Multiple Values from methods, Constructors • Access Protection, The four level of Access Protection 	
03	<p>Module 3</p> <p>Arrays as a Data Structure in JAVA</p> <ul style="list-style-type: none"> • Declaring Arrays, Creating Arrays, Initializing Arrays • System Arraycopy() • Multi-Dimensional Arrays • Strings • Vectors • Exceptions • Try-catch • The finally keyword • Catching multiple exceptions • The throws keyword, Throwing Exceptions 	10
04	<p>Module 4</p> <p>Inheritance:</p> <ul style="list-style-type: none"> • Inheritance: the super class • Multilevel Inheritance • Final and abstract keyword • Interfaces • Implementing Interfaces • Overriding Methods • Adding Methods • Sub classes and Polymorphism • To String() Methods • Using to String() Methods • Rules for to String() Methods • Static Members 	05

<p>05</p>	<p>Module 5</p> <p>Multithreaded Programming:</p> <ul style="list-style-type: none"> • Creating threads, extending the thread class • Stopping and blocking a thread • Lifecycle of a thread • Using thread methods, thread exceptions, thread priority, • Synchronization • The Java Packages & Class Library • Wrapping Your Own Packages • Naming Packages • Documentation for the class library • Importing Classes • Package Imports • Name Conflicts when importing packages • The java.lang package • The hashCode() method of java.lang. Object • Java.lang.Math, java.util. Vector, java.lang. String, java.util.Random, java.util.Hashtable java.util.Date,java.util.calendar 	<p>10</p>
<p>06</p>	<p>Module 6</p> <p>HTML</p> <ul style="list-style-type: none"> • Attributes, URLs, Links • Applet • The APPLET Element, Naming Applets • JAR Archives, The OBJECT Element • Passing Parameters to Applets • The Basic Applet Life Cycle, init(), start(), stop(), and destroy() • The Coordinate System, Graphics Objects, Loading Images • Code and Document Bases, Drawing Images at Actual Size • Scaling Images, Color, Fonts 	<p>05</p>

Term work :

Term work shall consist of the graded answer paper of the test and at least five take-home assignments. 15 debugged program listing demonstrating Object oriented constructs and concepts. Programs should be debugged (hand written or computer printouts) and should have suitable comments.

Each student is to appear for at least one written test(preferably on-line) during the term.

The distribution of marks for term work shall be as follows:

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| 1. Written test (at least one): | 10 marks |
| 2. Attendance (Theory and Practical) | 05 marks |
| 3. Documentation of assignments
and Debugged program (Laboratory Work) | 10 marks |

Practical Examination : Practicall examination will be based on CP-I and CP-II practical conduction.

Recommended Books:**Text Books**

1. Computing concepts with Java 2 essentials by CAYHORSTMANN, 2 Edition WILEY INDIA ISBN 81-265-931-7
2. Programming with JAVA A Primer, E Balagurusamy 3rd Edition, Tata McGraw- Hill, ISBN0-07-061713-9

Refeence Books:

1. Big Java by CAY HORSTMANN, 2 Edition, WILEY INDIA ISBN 81-265-0879-5
2. The Complete Reference JAVA, Herbert Schildt, Seventhy Edition, Tata McGraw-Hill, ISBN 0-07-063677-X